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Nano-fertilizers and Its Role in Plant Nutrient Management

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The applications of improvised fertilizers using nanotechnology could be one approach which includes development of nanofertilizers that can contribute significantly to improve crop production. Nano fertilizers due to their characteristic features play an important role in agricultural system. Nano fertilizers cause increased efficiency of the micro and macro elements, which can be available to plants. The use of nano fertilizers offers several potential advantages in agriculture system over application of traditional fertilizer. Nano fertilizers release nutrients into the soil sustainably and in a regulated way. Nano fertilizer helps to optimize nutrient management and facilitates higher nutrient use efficiency in plants at different developmental stages causing increased yield as compared to conventional applications of fertilizers. With the advances nanobiotechnology, it offers several opportunities in agriculture system for better nutrient management and crop yield. In the recent years several studies indicated the potential benefits of nanofertilizers in precise agriculture system that supports the soil nutrient enhancement, minimize nutrient loss, and also reduces the soil toxicity created due to the indiscriminate applications of traditional fertilizers in conventional agriculture system.

Key words: Nanofertilizers, nutrient use efficiency , crop production, sustainable agriculture